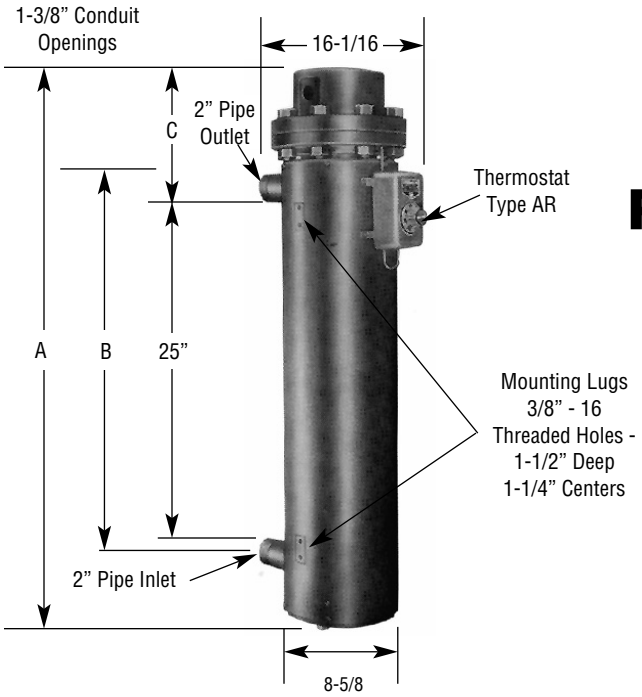
Chromalox®

Installation Instructions
and
RENEWAL PARTS IDENTIFICATION

SERVICE REFERENCE	
DIVISION 4	SECTION NWHO
SALES REFERENCE (Supersedes PE408-3)	PE408-4
	161-048341-001
DATE JULY, 1990	



Type NWHO-6 Circulation Heaters (for Regular and Fuel Oil Heating)

Specifications — Table A

Model	Volts	Phase	kW	W/In²	Dimensions (In.)		
					A	B	C
Regular Oil Heaters							
NWHO-61215	240 or 480	3 Δ	12	23	41-3/4	30	11-3/8
NWHO-61515	240 or 480	3 Δ	15	23	48-3/4	37	14-1/8
NWHO-62015	240 or 480	3 Δ	20	23	60-1/4	48-1/2	20-5/8
NWHO-62515	240 or 480	3 Δ	25	23	73-5/8	61-7/8	27-5/16
NWHO-63015	240 or 480	3 Δ	30	23	86-5/8	74-7/8	33-7/8
Fuel Oil Heaters							
NWHO-60825	240 or 480	1 or 3 Δ	8	15	41-3/4	30	11-3/8
NWHO-61025	240 or 480	3 Δ	10	15	48-3/4	37	14-1/8
NWHO-61225	240 or 480	3 Δ	12	15	60-1/4	48-1/2	20-5/8
NWHO-61525	240 or 480	3 Δ	15	15	73-5/8	61-7/8	27-5/16
NWHO-61825	240 or 480	3 Δ	18	15	86-5/8	74-7/8	33-7/8

GENERAL

The NWHO-6 series is a general-purpose regular and fuel oil solution circulation heater intended for use indoors. It is designed for 150 psig at 550˚F per ANSI standards.

The 6 steel-sheathed tubular elements are centered in a 5" diameter galvanized steel heating chamber and welded to a removable galvanized steel flange. The assembly is surrounded by 1-1/2" insulation and sheet metal jacket.

Depending upon the order specifications, the NWHO-6 may or may not be factory equipped with an AR or other Chromalox thermostat. (**Note**: UL listed models are factory pre-set with a 212˚F limit stop.) Such thermostats function to control outlet temperatures and to limit internal temperatures under abnormal flow conditions. These controls do not fail safe.

WARNING: ***Users should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.***

INSTALLATION

Caution: Hazard of Electric Shock. Disconnect all power before installing heater.

1. **Vertical Mounting** (Preferred) —
   When the heater is vertically mounted, the terminal housing will be at the top of the heater. The inlet pipe will be located on the side near the bottom of the heater and the outlet pipe at the top.
   The axis of the chamber will be in a vertical position as in the photo above and as in Figure A.

Note: A drain pipe located at the bottom of the heater should be provided and enough room left, when mounting heater, to allow draining the heater.

2. **Horizontal Mounting** (Optional) —
   When mounting heater horizontally, inlet and outlet pipes **must** be up. In any other position, heater cannot be purged of air, and elements may be seriously damaged. (See Figure B.)

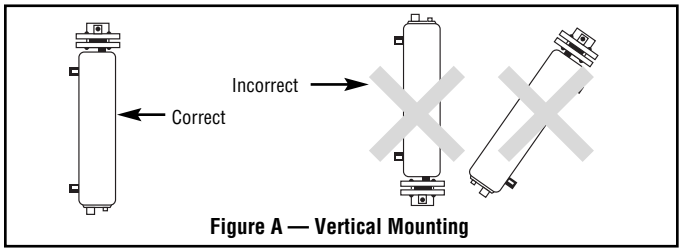


Figure A — Vertical Mounting

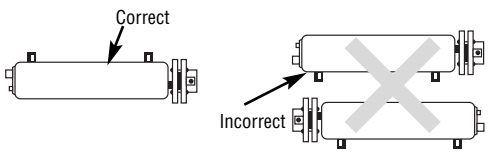


Figure B — Horizontal Mounting

© 2010 Chromalox, Inc.

INSTALLATION

3. Whether vertically or horizontally, the heater should be rigidly mounted so that vibration is at a minimum since excessive vibration will result in erratic thermostat operation. The NWHO-6 is provided with mounting lugs to support the heating chamber. (See photo.)
4. By using a slotted mounting assembly on either of the lugs, the heater chamber will be permitted to expand with increasing temperature.
5. **DANGER:** ***Hazard of Fire.*** Provide minimum of 6" spacing from chamber and related piping to nearest combustible material. Avoid operation of heater near combustible fluids or in combustible vapor or gas laden atmosphere. NOTE: Contact factory for heaters suitable for use in hazardous locations.
6. Provide adequate space at terminal end to permit withdrawal of the heater from chamber should servicing be required.

WIRING

WARNING: ***Hazard of Electric Shock. Any installation involving electric heaters must be grounded to earth to eliminate shock hazard.***

1. Be sure line voltage matches heater voltage (on nameplate).
2. Electric wiring to heater must be installed in accordance with local and National Electrical Codes.
3. Power controllers *must* be used when heaters are rated 3 phase and when the heater amperage exceeds to rating of the thermostat.
4. Refer to Wiring Diagram Table B, for the proper wiring diagram for connecting heater.

Wiring Diagrams - Table B

Model	240V, 1ø Fig.	240V, 3ø ⊿ Fig.	480V, 1ø Fig.	480V, 3 ø ⊿Fig.
NWHO-61215	–	2	–	5
NWHO-61515	–	2	–	5
NWHO-62015	–	3	–	5
NWHO-62515	–	3	–	5
NWHO-63015	–	3	–	5
NWHO-60825	1	2	4	5
NWHO-61025	–	2	–	5
NWHO-61225	–	2	–	5
NWHO-61525	–	2	–	5
NWHO-61825	–	2	–	5

Note: Use wire size and type specified by N.E.C. 480V and 550V heaters require 600V wire, per N.E.C. Contactors and wire supplied by customer.

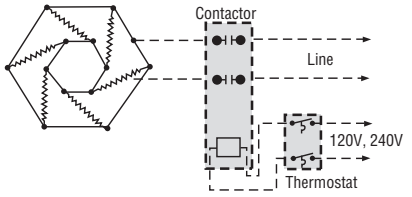


Figure 1 – NWHO
240V, 1ø

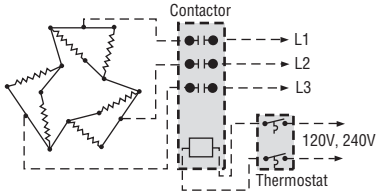


Figure 2 – NWHO6
240V, 3ø ⊿

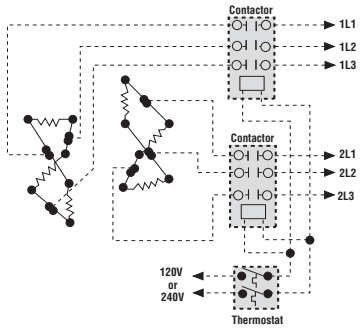


Figure 3 – NWHO6
240V, 2-3ø ⊿

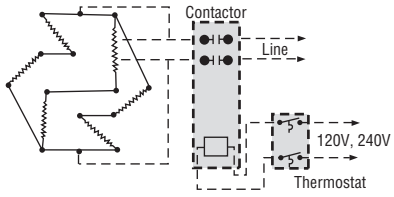


Figure 4 – NWHO6
480V, 1ø

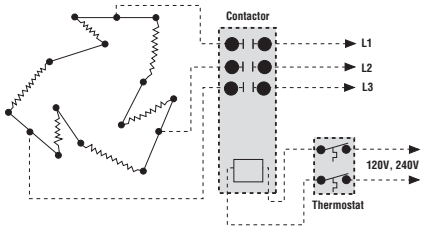


Figure 5 – NWHO6
480V, 3ø ⊿

Note: Dotted lines indicate "customer furnished." However, Thermostat could have been furnished by Chromalox if so specified on the order.

OPERATION

1. Do not heat solutions that are corrosive to the heating element sheath or the heating chamber.

WARNING: ***Type NWHO Circulation Heaters are equipped with steel heating elements and galvanized-steel heating chambers. It is the responsibility of the user to know the chemical composition of the corrosive solution and the character of the materials entering the solution as well as the corrosive effect of the solution upon the heating elements and chamber. Chromalox cannot warrant any electric circulation heater against failure by sheath corrosion if such failure is the result of operating conditions beyond our control.***

2. Terminal ends of heater must be protected from drippings, condensation, spray or direct spill-over of material. Their presence at the terminals may damage heater electrical insulation. Liquid-tight terminal enclosures are available to protect heater. Contact your Local Chromalox Sales office.
3. If foreign material is carried by the liquid flow, install suitable filters in the inlet pipe line to the heater.
4. Do not allow heater to operate when liquid flow is interrupted.

MAINTENANCE

1. **WARNING:** ***Hazard of Electric Shock. Disconnect all power before servicing heater.***
2. Remove heating element assembly periodically to check heater sheath for scaling, corrosion or excessive oxidation. Correct operating conditions to minimize sheath deterioration.
3. Periodically check temperature control and limit control operation to insure accurate and safe process operations.
4. Check all electrical connections periodically and retighten connections which may have loosened in service. Replace wire and wire terminals which show signs of oxidation which would interfere with establishment of reliable electrical connections.

RENEWAL PARTS IDENTIFICATION

Regular Oil Heaters

Model	Volts	Phase	kW	Heating Element
NWHO-61215	240	3 △	12	155-115846-028
NWHO-61215	480	3 △	12	155-115846-030
NWHO-61515	240	3 △	15	155-115846-035
NWHO-61515	480	3 △	15	155-115846-037
NWHO-62015	240	2-3 △	20	155-115846-042
NWHO-62015	480	3 △	20	155-115846-044
NWHO-62515	240	2-3 △	25	155-115846-047
NWHO-62515	480	3 △	25	155-115846-049
NWHO-63015	240	2-3 △	30	155-115846-051
NWHO-63015	480	3 △	30	155-115846-053

Fuel Oil Heaters

Model	Volts	Phase	kW	Heating Element
NWHO-60825	240	1	8	155-115844-004
NWHO-60825	240	3 Δ	8	155-115844-005
NWHO-60825	480	1	8	155-115844-006
NWHO-60825	480	3 Δ	8	155-115844-007
NWHO-61025	240	3 Δ	10	155-115844-012
NWHO-61025	480	3 Δ	10	155-115844-014
NWHO-61025	240	3 Δ	12	155-115844-019
NWHO-61025	480	3 Δ	12	155-115844-021
NWHO-61525	240	3 Δ	15	155-115844-023
NWHO-61525	480	3 Δ	15	155-115844-025
NWHO-61525	240	3 Δ	18	155-115844-027
NWHO-61525	480	3 Δ	18	155-115844-029

Note: When ordering parts for Model Numbers suffixed by "XX" or any other letter or letters not specifically identified on this instruction sheet, order Renewal Parts on special order basis, giving name of part, part number, model number and description.

PARTS COMMON TO ALL HEATERS	
Gasket	132-017222-016
Thermostat (AR2525)	300-013863-038
Thermostat (AR5525)	300-013863-039

Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at
http://www.chromalox.com/customer-service/policies/termsofsale.aspx.

Chromalox®
PRECISION HEAT AND CONTROL
2150 N. RULON WHITE BLVD., OGDEN, UT 84404
Phone: 1-800-368-2493 www.chromalox.com

99 - 063
TA - R9 - EF
Litho in U.S.A.